



# UNITED STATES PATENT AND TRADEMARK OFFICE

*een*

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,104	06/25/2003	Tzu-Yu Wang	H0004823 (1139.1140101)	4209
22913 7590 06/28/2007 WORKMAN NYDEGGER (F/K/A WORKMAN NYDEGGER & SEELEY) 60 EAST SOUTH TEMPLE 1000 EAGLE GATE TOWER SALT LAKE CITY, UT 84111			EXAMINER NGUYEN, PHILLIP	
			ART UNIT 2828	PAPER NUMBER
			MAIL DATE 06/28/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/606,104

**Applicant(s)**

WANG ET AL.

**Examiner**

Phillip Nguyen

**Art Unit**

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) 1-7, 16-35 and 37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8-12 and 36 is/are rejected.
- 7) ☒ Claim(s) 13-15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of claims 8-15 and 36 in the reply filed on 4/12/2007 is acknowledged.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 8-15 and 36 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argues, in paragraphs 4-5 of page 14, "in direct contrast, independent claim 8, 16, and 23 have been amended to require a "fully" oxidized layer in the mirror" which is partly incorrect. Applicant has never amended claim 8 to include this limitation. Therefore the argument is invalid for at least the claim 8.

### ***Double Patenting***

3. Claim 12 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 10. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

*Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 8-10 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Jewell (US 20010019556).

With respect to claims 8-9, Jewell discloses in Fig. 5D or 7 a long wavelength vertical cavity surface emitting laser comprising: an InP substrate 82/182; a first mirror 118/184 proximate said substrate and having a plurality of layers including at least one pair of layers 119 and 120/ or 186 and 188 having a non-oxidized AlGaInAs layer and an oxidized layer, wherein the oxidized layer comprises at least one of oxidized InGaAsP, InAlAs, InAlGaAs, AlAsSb, AlGaAsSb, AlGaPSb or AlPSb; a cavity proximate to said first mirror; a second mirror 122/196 proximate to said cavity; and at least two contacts 100 and 128/ or 96 and 128 configured to cause current to flow through at least a portion of the vertical cavity surface emitting laser (paragraphs 0058 and 0071).

With respect to claim 9, Jewell discloses the first mirror is proximate to an InP substrate 82 (paragraph 0058)

With respect to claim 10, see paragraphs 0014 and 0071.

Art Unit: 2828

5. Claims 8-10 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Jewell (US 5729566).

With respect to claims 8-9, Jewell discloses the claimed invention as shown in Fig. 1-4.

In Fig. 1, Jewell discloses a long wavelength vertical cavity surface emitting laser comprising: an InP substrate 14 (col. 6, lines 1-2); a first mirror 16 proximate said substrate 14 and having a plurality of layers including at least one pair of layers having a non-oxidized **A1GaInAs** layer 32 (col. 7, lines 28-32) and an oxidized layer 30, wherein the oxidized layer comprises at least one of oxidized InGaAsP, **InAlAs**, **InAlGaAs**, **AlAsSb**, **AlGaAsSb**, **AlGaPSb** or **AlPSb** (col. 6, lines 53-57); a cavity proximate to said first mirror; a second mirror 28 proximate to said cavity; and at least two contacts 13 and 39 configured to cause current to flow through at least a portion of the vertical cavity surface emitting laser.

With respect to claim 10, Jewell discloses the cavity comprising one or more quantum wells 20 configured to emit energy at a wavelength greater than 1200 nm (col. 1, lines 48-56).

In Fig. 3, Jewell further discloses the claimed invention with respect to claims 8-10 with an alternative embodiment from Fig. 1-2 wherein the electrode 39 is replaced with electrode 54 which is in contact with the substrate.

With respect to claim 36, Jewell discloses the plurality of layers of the first mirror 30 has six or fewer pairs of layers (col. 7, lines 57-60).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jewell (US 5729566, hereinafter '566) in view of Jewell (US 5881085, hereinafter '085).

Jewell '566 discloses the claimed invention except for wherein second mirror includes at least one InP layer. Jewell '085 discloses a VCSEL in Fig. 9 with at least one InP layer in the second mirror 208 formed on an InP substrate (col. 12, lines 24-30). It would have been obvious to the one having ordinary skill in the art at the time the invention was made to provide at least one InP layer in the second mirror as taught by Jewell '085 to Jewell '566 in order to prevent dislocation of the layer from lattice mismatching with the InP substrate.

With respect to claim 12, see rejection of claim 10.

***Allowable Subject Matter***

7. Claims 13-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 2828

There is not taught the second mirror comprising partially oxidized layer for confining current in combination with other limitations recited in claim 12.

### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

### ***Communication Information***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phillip Nguyen whose telephone number is 571-272-1947. The examiner can normally be reached on 9:00 AM - 6:00 PM.

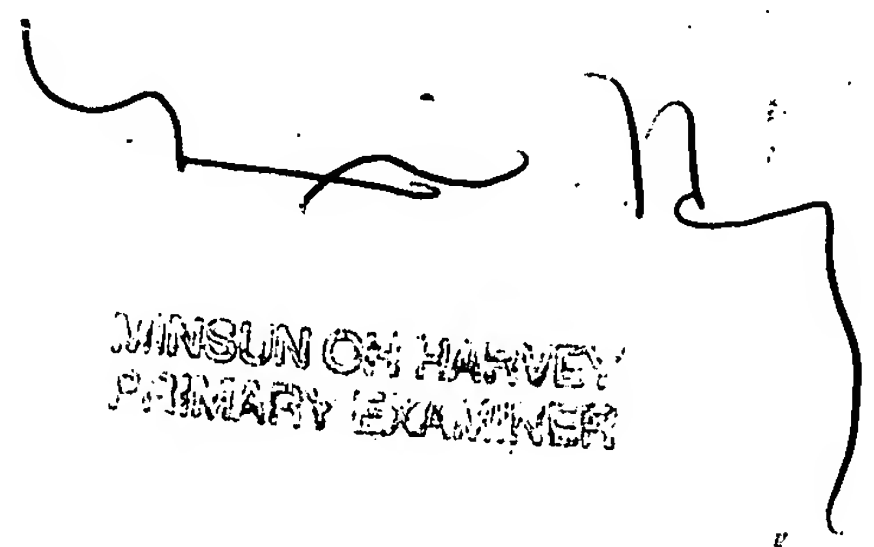
Art Unit: 2828

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MINSUN HARVEY, can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Phillip Nguyen/

AU 2828

  
MINSUN OH HARVEY  
PRIMARY EXAMINER